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REMARKS

This response is intended as a full and complete response to the final office action dated September 18, 2002. In the office action, the Examiner notes that claims 1-21 are pending, of which claims 1-21 stand rejected. By this amendment, claim 1 has been amended and claims 2-21 continue unamended.

In view of both the amendments presented above and the following discussion, the applicants submit that none of the claims now pending in the application are anticipated or obvious under respective provisions 35 U.S.C. §102 and §103. Thus, the applicants believe that all of these claims are now in allowable form.

It is to be understood that the applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to applicants' subject matter recited in the pending claims. Further, applicants are not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendment.

IN THE SPECIFICATION

The applicants have amended the specification to provide reference designations to conform to the reference designations in the drawings, as well as updated a cross-referenced patent applicant serial number and filing date to its respective issued patent number and issued date.

REJECTIONS

A. 35 U.S.C. §102

1. Claims 1-3, 8, 10-11, 14, 16, 18, and 21

The Examiner has rejected claims 1-3, 8, 10, 11, 14, 16, 18, and 21 as being anticipated under 35 U.S.C. §102(b) by Tsuji, et al. (U.S. Patent No. 5,947,766, issued September 7, 1999, hereinafter "Tsuji"). The applicants respectfully traverse the rejection.

The applicants have amended claim 1 to include additional features that the applicants consider inventive. In particular, the applicants' claim 1, as amended, recites:

"An electrical coupler, comprising:

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an electrically conductive inner connector element having opposing ends;
an upper end connector and a lower end connector; each end connector
respectively coupled to one of said opposing ends of said inner connector
element;
a thermally conductive flange circumscribing said inner connector; and
an electrically non-conductive outer connector element disposed over said
electrically conductive inner connector and said thermally conductive flange."
(emphasis added).

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindenmann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing Connell v. Sears Roebuck & Company, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). The Tsuji reference fails to disclose each and every element of the claimed invention, as arranged in the claim.

In particular, the Examiner has defined a rubber sleeve 25 of a rubber sheet 20 as being equivalent to an inner connector element, and a connector housing flange 14 as being the outer connector element (see Tsuji, FIG. 5). Further, the Tsuji reference defines the sleeve 25 (i.e., inner connector element) as being fabricated from rubber, such as silicone rubber (See Tsuji col. 3, lines 60-61 and col. 5, lines 26-28). The flange 14 (i.e., outer connector element) may be made of a material vulcanized with rubber, or the flange 14 may have a multi-layer structure, in which a core layer made of a hard resin material is coated with a cover layer made of a soft resin material (for example, hard urethane resin or the like) for absorbing vibration (See Tsuji col. 7, lines 32-40). Nowhere in the Tsuji reference is there any teaching or suggestion that the inner connector is fabricated from an electrically conductive material. Rather, the Tsuji reference discloses the complete opposite, that is, that the inner conductor element is fabricated from a non-conductive material, such as a silicon rubber.

The prior art must be such that a person of ordinary skill in the field of the invention would consider there to be no difference between the claimed invention and the reference disclosure. Scripps Clinic & Research Foundation v. Genentech, Inc., 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991). In other words, the prior art reference must put the claimed invention in the hand of one skilled in the art. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). In this instance, a person skilled in the art would clearly distinguish a

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rubber material, such as silicon rubber, as being an electrically non-conductive material, as opposed to being an electrically conductive material, regardless of any limited conductive properties the rubber material may exhibit. That is, it is well known in the art that rubber is commonly used as an electrically non-conductive material.

Thus, the applicants claim an electrically conductive inner connector element, and an electrically non-conductive outer connector element disposed over the electrically conductive inner connector and the thermally conductive flange, as opposed to the teachings of Tsuji, which merely disclose a non-conductive outer connector element circumscribing a non-conductive inner connector element. Therefore, the Tsuji reference fails to teach each and every element of the claimed invention, as arranged in the claim.

As such, the applicants submit that independent claim 1, as amended, fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder. Furthermore, claims 2, 3, 8, 10, 11, 14, 16, 18, and 21 depend, either directly or indirectly, from independent claim 1 and recite additional features thereof. As such, and for at least the same reasons set forth above, the applicants submit that these dependent claims are not anticipated from the teachings of the reference and fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder. Therefore, the applicants respectfully request that the rejections be withdrawn.

B. 35 U.S.C. §103

1. Claims 4-7, 9, 17, and 19

The Examiner has rejected claims 4-7, 9, 17, and 19 as being obvious under 35 U.S.C. §103 over Tsuji in view of the applicants' admitted prior art (AAPA). The applicants respectfully traverse the rejection.

Dependent claims 4-7, 9, 17, and 19 depend, either directly or indirectly, from claim 1 and recite additional limitations regarding the composition or materials of which various elements in claim 1 are fabricated. In particular, dependent claim 4 (and similarly claims 5-7, 9, 17, and 19) when combined with claim 1, recites:

"An electrical coupler, comprising:
an electrically conductive inner connector element having opposing ends;

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an upper end connector and a lower end connector; each end connector respectively coupled to one of said opposing ends of said inner connector element;

a thermally conductive flange circumscribing said inner connector; an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange; and wherein the thermally conductive flange is fabricated from a ceramic material." (emphasis added).

The test under 35 U.S.C. § 103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). The combination of Tsuji and the AAPA fails to teach or suggest the applicants' invention as a whole.

As discussed above, the Tsuji reference fails to teach or suggest the limitation "an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange". Rather, the Tsuji reference teaches away from the applicants' invention, since the outer connector element merely circumscribes an electrically non-conductive inner connector element. Nowhere in the Tsuji reference is there any teaching or suggestion that the inner connector element (i.e., rubber sleeve 25 of the Tsuji reference) may be fabricated from an electrically conductive material.

Further, the AAPA fails to bridge the substantial gap as between the Tsuji reference and the applicants' invention. In particular, the AAPA fails to teach or suggest a structural arrangement of an outer connector element disposed over the inner connector element and the thermally conductive flange. In fact, the AAPA is completely silent with regard to an electrically conductive inner connector element, an electrically non-conductive outer connector element, and a thermally conductive flange. Rather, the AAPA merely discloses a single male connector 24 coupled to a single female connector 20 (see specification, page 1, lines 26-29, and Figure 1).

Even if two references could somehow be combined (and the applicants submit that the two references may not be operationally combined) the combination would merely disclose an electrically non-conductive inner connector element having a flange, and an electrically non-conductive outer connector element disposed over the electrically non-conductive inner

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connector element. Therefore, the combined references fail to teach the applicants' invention as a whole, since neither reference, either singularly nor in combination, teaches or suggests "an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange."

Moreover, the invention as a whole, is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The applicants' invention solves a problem of electrically isolating the electrically conductive inner connector and thermally conductive flange from its environment. Specifically, the applicant's invention utilizes an electrically non-conductive outer connector element to electrically isolate the electrically conductive inner connector element from its environment. Nowhere in the Tsuji reference or AAPA is there any teaching or suggestion of the electrically non-conductive outer connector element disposed over the electrically conductive inner connector element and the thermally conductive flange. Rather, the rubber sleeve 25 (i.e., inner connector element) of Tsuji is fabricated from a rubber material, which is used to solve a vibration problem. Therefore, the combination of Tsuji and the AAPA fails to teach or suggest the applicant's invention as a whole.

As such, the applicants submit that claim 4 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 5-7, 9, 17, and 19 also depends from claim 1 and recite limitations regarding various materials in which the flange, inner connector element, and upper and lower end connectors are fabricated. As such, and for at least the same reasons as discussed above, the applicants submit that none these dependent claims are obvious, and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the rejection be withdrawn.

2. Claims 12, 13, 15, and 20

The Examiner has rejected claims 12, 13, 15, and 20 as being obvious under 35 U.S.C. §103 over Tsuji. The applicants respectfully traverse the rejection.

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Claims 12, 13, 15, and 20 each recite limitations regarding various materials in which the upper and lower male connectors are fabricated. In particular, dependent claim 12 (and similarly claims 13, 15, and 20) when combined with independent claim 1, recite in part:

“An electrical coupler, comprising:
an electrically conductive inner connector element having opposing ends;
an upper end connector and a lower end connector; each end connector respectively coupled to one of said opposing ends of said inner connector element;
a thermally conductive flange circumscribing said inner connector;
an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange;”
(emphasis added).

As discussed above with regard to claims 4-7, 9, 17, and 19, the Tsuji reference fails to teach or suggest the limitation “an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange”. Rather, Tsuji discloses an inner connector element formed by the rubber sleeve 25, as opposed to being fabricated from an electrically conductive material. Therefore, the Tsuji reference fails to teach the applicant’s invention as a whole.

Furthermore, the Examiner has rejected the claims 12, 13, 15, and 20 by citing that “it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice” In re Leshin, 125 USPQ 416. However, the materials selected by applicant differ from the materials shown in the Tsuji reference because they address and solve a completely different problem than disclosed in Tsuji.

The invention as a whole, is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, Id. The Tsuji reference comprises materials to secure a housing to a structure that produces vibration, such as an engine. By contrast, the applicants’ invention addresses and solves a problem of providing electrical current, as well as reducing heat through the claimed electrical coupler, which is a completely different problem. Since there is no teaching or suggestion in the Tsuji reference that such a structure may be fabricated from the materials recited in claims 12, 13, 15, and 20 to solve the problem addressed by the applicants, such citation by the Examiner is improper. Further, the

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applicants request that the Examiner identify prior art that teaches these materials being used for the electrical coupler as defined by the applicants in claims 12, 13, 15, and 20. Moreover, the Examiner has not cited any prior art, nor shown that these materials are inherent in the teachings of the art.

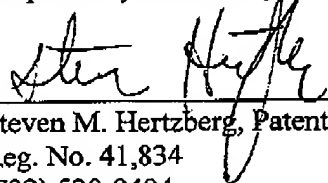
As such, the applicants submit that claim 12 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Likewise, claims 13, 15, and 20 depend, either directly or indirectly, from independent claim 1 and recite similar limitations thereof. As such, and for at least the same reasons as discussed above, the applicants submit that these dependent claims are also not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the rejections be withdrawn.

CONCLUSION

Thus, the applicants submit that claims 1-21 are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Steven Hertzberg, telephone number (732) 530-9404, so that appropriate arrangements may be made for resolving such issues as expeditiously as possible.

Respectfully submitted,


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11/18/02

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APPENDIX I
Marked-Up Version Of The Specification

Page 4, beginning at line 3:

FIG. 2 depicts a semiconductor wafer support 200 having an electrical coupler in accordance with the present invention. In particular, the semiconductor wafer support 200 comprises a chuck 220 coupled to a cooling plate 167 having an electrical coupler 230, and a power source 28. A work piece such as a semiconductor wafer (i.e., substrate) is disposed upon an upper surface of the chuck 220. The wafer (not shown) is chucked and biased by an electrode 73 coupled to the power source 28 via the electrical coupler 230. Additionally, the preferred embodiment inventively utilizes a thermally conductive flange 202 (to be discussed in detail) for transferring heat from the electrical coupler 230 to the cooling plate 167. A semiconductor wafer processing system is disclosed in U.S. Patent [Application Serial No. 09/212,000] No. 6,151,203 entitled CONNECTORS FOR AN ELETROSTATIC CHUCK AND COMBINATION THEREOF, by Shamoulian et al., [filed December 14, 1998] issued November 21, 2000 and assigned to the same assignee as the present application, Applied Materials, Inc., of Santa Clara, CA. This patent application is incorporated herein by reference as if fully reproduced herein.

Page 6, beginning line 25 through page 7, line 7:

The electrode 73 that is embedded in the chuck 220 is electrically coupled to the chucking and biasing power sources 32 and 30, via the electrical coupler 230. Specifically, the upper male connector 231 is inserted into the upper portion 232 of the electrical coupler 230 disposed in the cooling plate 167, in blind assembly of the chuck body 162, along path 214 as shown in FIG. 2. The chucking power supply 32 and a biasing power supply 30 are each coupled to the electrical coupler 230 via a lower male connector 233. The lower male connector 233 is a solid, generally cylindrical connector member having a generally conical or tapered distal end. In the preferred embodiment the lower male connector 233 is copper or beryllium copper. Furthermore, the lower male connector 233 is inserted into a female counterpart at a lower end 235 of the electrical coupler 230 along path 216 as shown by the arrows in FIG. 2. In this manner, RF biasing power from the biasing power supply 30 and DC chucking voltage from the chucking power supply 32 are supplied to the embedded electrode 73 via the electrical coupler 230.

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APPENDIX II
Marked-Up Version Of The Claims

1. (Amended) An electrical coupler, comprising:
 - an electrically conductive inner connector element having opposing ends;
 - an upper end connector and [an] a lower end connector; each end connector respectively coupled to one of said opposing ends of said inner connector element;
 - a thermally conductive flange circumscribing said inner connector; and
 - an electrically non-conductive outer connector element disposed over said electrically conductive inner connector and said thermally conductive flange.

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